

CLAIMS

What is claimed is:

1. An actuator locking apparatus of a hard disk drive locking an actuator using a magnetic force of a magnet attached to a first surface of a first yoke of a voice coil motor, facing the actuator, with the first yoke and a second yoke of the voice coil motor installed at opposing sides of the actuator to face each other, so that a magnetic head installed at the actuator is maintained in a state of being parked in a parking zone of a disk, the actuator locking apparatus comprising:

- a metal piece installed at an end portion of an arm of the actuator;
- a contact portion protruding from a side surface of the second yoke, and bent such that an interval between a first contact surface of the contact portion facing the actuator and the actuator, is greater than an interval between a second surface of the second yoke facing the actuator and the actuator; and
- a bending portion protruding from an edge of the first yoke and bent toward the contact portion, extending to the bending portion so that a second contact surface of an end portion of the contact portion contacts the first contact surface of the contact portion, and having a slot of predetermined width corresponding to the metal piece,

2. The apparatus as claimed in claim 1, wherein:
a difference in height between the first contact surface of the contact portion and the second surface of the second yoke is approximately half of a thickness of the second yoke.

3. The apparatus as claimed in claim 1, wherein:
the entire second contact surface of the bending portion contacts the first contact surface of the contact portion.

4. The apparatus as claimed in claim 3, wherein:
a side surface of the contact portion facing the metal piece is flush with a side surface of the bending portion facing the metal piece.

5. The apparatus as claimed in claim 3, wherein:
a side surface of the contact portion facing the metal piece protrudes farther toward the metal piece than a side surface of the bending portion facing the metal piece.

6. The apparatus as claimed in claim 1, wherein:

the first yoke is an upper yoke of the actuator, the second yoke is a lower yoke of the actuator, and the magnet is installed on a bottom surface of the upper yoke.

7. The apparatus as claimed in claim 1, wherein:

the first yoke is a lower yoke of the actuator, the second yoke is an upper yoke of the actuator, and the magnet is installed on an upper surface of the lower yoke.

8. The apparatus as claimed in claim 1, wherein:

the metal piece is magnetically adhered to the bending portion to maintain the magnetic head in the parking zone.

9. An actuator locking apparatus of a hard disk drive, comprising:

an actuator that pivots, with a coupling protrusion at a first end thereof;

a metal piece attached to the coupling protrusion;

first and second yokes of a voice coil motor, with respective opposing first and second surfaces;

a contact portion protruding from the second yoke, with a first contact surface approximately parallel to the second surface, where a distance between the first contact surface and a plane formed by the actuator is greater than a distance between the second surface and the plane;

a bending portion extending from the first yoke

with a second contact surface that contacts the first contact surface, and

a slot of predetermined width that corresponds to the metal piece; and

a magnet attached to the first yoke, that magnetizes the bending portion to attract and magnetically adhere the metal piece to the bending portion at the slot, and lock the actuator in a predetermined position.

10. The apparatus according to claim 9, wherein:

a distance between a plane formed by the first contact surface and a plane formed by the second surface is approximately half of a thickness of the second yoke.

11. The apparatus according to claim 9, further comprising:

a damper made of a flexible material and interposed between the coupling protrusion and the metal piece.

12. The apparatus according to claim 11, wherein:
the damper is made of rubber.

13. The apparatus according to claim 9, wherein:
the metal piece is stainless steel.

14. The apparatus according to claim 9, wherein:
the magnet is a permanent magnet.

15. The apparatus according to claim 9, wherein:
a side surface of the bending portion that contacts the metal piece when the actuator is locked is flush with a side surface of the contact portion.

16. The apparatus according to claim 9, wherein:
a side surface of the bending portion that contacts the metal piece when the actuator is locked is offset by a predetermined distance from a side surface of the contact portion.

17. The apparatus according to claim 9, wherein:
the metal piece does not contact the contact portion.

18. An actuator locking apparatus of a hard disk drive, comprising:
an actuator with a coupling protrusion at a first end thereof;
a voice coil motor to pivot the actuator, comprising
a first yoke with a first surface
a second yoke with a second surface opposing the first yoke, with the actuator disposed between the first and second yokes, and
a magnet attached to the first yoke;
a metal piece attached to the coupling protrusion;

a contact portion protruding from the second yoke, with a first contact surface approximately parallel to the second surface, where a distance between the first contact surface and a plane formed by the actuator is greater than a distance between the second surface and the plane; and

a bending portion extending from the first yoke
with a second contact surface that contacts the first contact surface, and
a slot of predetermined width that corresponds to the metal piece, wherein
the magnet magnetizes the bending portion to bias the metal piece toward the
bending portion, and magnetically adhere the metal piece to the bending portion at the slot, and
lock the actuator in a predetermined position.

19. An actuator locking apparatus of a hard disk drive, comprising:
a first yoke with a first surface;
a second yoke;
an actuator disposed between the first and second yokes;
a contact portion protruding from the first yoke, with a first contact surface approximately parallel to the first surface,

wherein the contact portion is bent such that a distance between the first contact surface and a plane formed by the actuator is greater than a distance between the first surface and the plane.

20. A yoke of an actuator locking apparatus including an actuator, the yoke comprising:
a first surface;
a contact portion with a first contact surface, protruding from the first yoke,
wherein the contact portion is bent such that a distance between the first contact surface and a plane formed by the actuator is greater than a distance between the first surface and the plane.